SEQUENCE LISTING

(1) GENERAL INFORMATION:

    (i) APPLICANT:
        (A) NAME: Fred Hutchinson Cancer Research Center, Inc.
        (B) STREET: 1100 Fairview Avenue North, Mailstop c2M-027
        (C) CITY: Seattle
        (D) STATE: Washington
        (E) COUNTRY: USA
        (F) POSTAL CODE (ZIP): 98109

        (A) NAME: Thomas Spies
        (B) STREET: 2429 E. Aloha
        (C) CITY: Seattle
        (D) STATE: Washington
        (E) COUNTRY: USA
        (F) POSTAL CODE (ZIP): 98112

        (A) NAME: Veronika Spies
        (B) STREET: 2429 E. Aloha
        (C) CITY: Seattle
        (D) STATE: Washington
        (E) COUNTRY: USA
        (F) POSTAL CODE (ZIP): 98112

    (ii) TITLE OF INVENTION: CELL STRESS REGULATED HUMAN MHC CLASS I GENE

    (iii) NUMBER OF SEQUENCES: 16

    (iv) COMPUTER READABLE FORM:
        (A) MEDIUM TYPE: Floppy disk
        (B) COMPUTER: IBM PC compatible
        (C) OPERATING SYSTEM: PC-DOS/MS-DOS
        (D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

    (vi) PRIOR APPLICATION DATA:
        (A) APPLICATION NUMBER: US 60/029,044
        (B) FILING DATE: 29-OCT-1996

(2) INFORMATION FOR SEQ ID NO: 1:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 11722 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

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(2) INFORMATION FOR SEQ ID NO: 2:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 385 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS:
        (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

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Ala Pro Pro Gly Ala Ala Ala Glu Pro His Ser Leu Arg Tyr Asn Leu
            20                  25                  30

Thr Val Leu Ser Trp Asp Gly Ser Val Gln Ser Gly Phe Leu Ala Glu
        35                  40                  45
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    50   55   60

Arg Ala Lys Pro Gln Gly Gln Trp Ala Glu Asp Val Leu Gly Asn Lys
65   70   75   80

Thr Trp Asp Arg Glu Thr Arg Asp Leu Thr Gly Asn Gly Lys Asp Leu
          85   90   95

Arg Met Thr Leu Ala His Ile Lys Asp Gln Lys Glu Gly Leu His Ser
        100   105   110

Leu Gln Glu Ile Arg Val Cys Glu Ile His Glu Asp Asn Ser Thr Arg
        115   120   .125

Ser Ser Gln His Phe Tyr Tyr Asp Gly Glu Leu Phe Leu Ser Gln Asn
     130   135   140

Val Glu Thr Glu Glu Trp Thr Val Pro Gln Ser Ser Arg Ala Gln Thr
145   150   155   160

Leu Ala Met Asn Val Arg Asn Phe Leu Lys Glu Asp Ala Met Lys Thr
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Lys Thr His Tyr His Ala Met His Ala Asp Cys Leu Gln Glu Leu Arg
        180   185   190

Arg Tyr Leu Glu Ser Ser Val Val Leu Arg Arg Arg Val Pro Pro Met
        195   200   205

Val Asn Val Thr Arg Ser Glu Ala Ser Glu Gly Asn Ile Thr Val Thr
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Cys Arg Ala Ser Ser Phe Tyr Pro Arg Asn Ile Thr Leu Thr Trp Arg
225   230   235   240

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Leu Pro Asp Gly Asn Gly Thr Tyr Gln Thr Trp Val Ala Thr Arg Ile
        260   -- 265   270

Cys Gln Gly Glu Glu Gln Arg Phe Thr Cys Tyr Met Glu His Ser Gly
        275   280   285

Asn His Ser Thr His Pro Val Pro Ser Gly Lys Val Leu Val Leu Gln
     290   295   300

Ser His Trp Gln Thr Phe His Val Ser Ala Val Ala Ala Ala Ala Ala
305   310   315   320

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Phe Gln Pro Leu Met Ser Ala Leu Gly Ser Thr Gly Ser Thr Glu Gly
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(2) INFORMATION FOR SEQ ID NO: 3:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 2380 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

```
GGGCCATGGG GCTGGGCCGG GTCCTGCTGT TTCTGGCCGT CGCCTTCCCT TTTGCACCCC      60

CGGCAGCCGC CGCTGAGCCC CACAGTCTTC GTTACAACCT CATGGTGCTG TCCCAGGATG     120

AATCTGTGCA GTCAGGGTTT CTCGCTGAGG GACATCTGGA TGGTCAGCCC TTCCTGCGCT     180

ATGACAGGCA GAAACGCAGG GCAAAGCCCC AGGGACAGTG GGCAGAAGAT GTCCTGGGAG     240

CTAAGACCTG GGACACAGAG ACCGAGGACT TGACAGAGAA TGGGCAAGAC CTCAGGAGGA     300

CCCTGACTCA TATCAAGGAC CAGAAAGGAG GCTTGCATTC CCTCCAGGAG ATTAGGGTCT     360

GTGAGATCCA TGAAGACAGC AGCACCAGGG GCTCCCGGCA TTTCTACTAC GATGGGGAGC     420

TCTTCCTCTC CCAAAACCTG GAGACTCAAG AATCGACAGT GCCCCAGTCC TCCAGAGCTC     480

AGACCTTGGC TATGAACGTC ACAAATTTCT GGAAGGAAGA TGCCATGAAG ACCAAGACAC     540

ACTATCGCGC TATGCAGGCA GACTGCCTGC AGAAACTACA GCGATATCTG AAATCCGGGG     600

TGGCCATCAG GAGAACAGTG CCCCCCATGG TGAATGTCAC CTGCAGCGAG GTCTCAGAGG     660

GCAACATCAC CGTGACATGC AGGGCTTCCA GCTTCTATCC CCGGAATATC ACACTGACCT     720

GGCGTCAGGA TGGGGTATCT TTGAGCCACA ACACCCAGCA GTGGGGGGAT GTCCTGCCTG     780

ATGGGAATGG AACCTACCAG ACCTGGGTGG CCACCAGGAT TCGCCAAGGA GAGGAGCAGA     840

GGTTCACCTG CTACATGGAA CACAGCGGGA ATCACGGCAC TCACCCTGTG CCCTCTGGGA     900

AGGTGCTGGT GCTTCAGAGT CAACGGACAG ACTTTCCATA TGTTTCTGCT GCTATGCCAT     960

GTTTTGTTAT TATTATTATT CTCTGTGTCC CTTGTTGCAA GAAGAAAACA TCAGCGGCAG    1020

AGGGTCCAGA GCTTGTGAGC CTGCAGGTCC TGGATCAACA CCCAGTTGGG ACAGGAGACC    1080

ACAGGGATGC AGCACAGCTG GGATTTCAGC CTCTGATGTC AGCTACTGGG TCCACTGGTT    1140
```

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CCACTGAGGG CGCCTAGACT CTACAGCCAG GCGGCCAGGA TTCAACTCCC TGCCTGGATC    1200

TCACCAGCAC TTTCCCTCTG TTTCCTGACC TATGAAACAG AAAATAACAT CACTTATTTA    1260

TTGTTGTTGG ATGCTGCAAA GTGTTAGTAG GTATGAGGTG TTTGCTGCTC TGCCACGTAG    1320

AGAGCCAGCA AAGGGATCAT GACCAACTCA ACATTCCATT GGAGGCTATA TGATCAAACA    1380

GCAAATTGTT TATCATGAAT GCAGGATGTG GGCAAACTCA CGACTGCTCC TGCCAACAGA    1440

AGGTTTGCTG AGGGCATTCA CTCCATGGTG CTCATTGGAG TTATCTACTG GGTCATCTAG    1500

AGCCTATTGT TTGAGGAATG CAGTCTTACA AGCCTACTCT GGACCCAGCA GCTGACTCCT    1560

TCTTCCACCC CTCTTCTTGC TATCTCCTAT ACCAATAAAT ACGAAGGGCT GTGGAAGATC    1620

AGAGCCCTTG TTCACGAGAA GCAAGAAGCC CCCTGACCCC TTGTTCCAAA TATACTCTTT    1680

TGTCTTTCTC TTTATTCCCA CGTTCGCCCT TTGTTCAGTC CAATACAGGG TTGTGGGGCC    1740

CTTAACAGTG CCATATTAAT TGGTATCATT ATTTCTGTTG TTTTTGTTTT TGTTTTTGTT    1800

TTTGTTTTTG AGACAGAGTC TCACTCGTCA CCCAGGCTGC AGTTCACTGG TGTGATCTCA    1860

GCTCACTGCA ACCTCTGCCT CCCAGGTTCA AGCACTTCTC GTACCTCAGA CTCCCGATAG    1920

CTGGGATTAC AGACAGGCAC CACCACACCC AGCTAATTTT TGTATTTTTT GTAGAGACGG    1980

GGTTTCGCCA AGTTGACCAG CCCAGTTTCA AACTCCTGAC CTCAGGTGAT CTGCCTGCCT    2040

TGGCATCCCA AAGTGCTGGG ATTACAAGAA TGAGCCACCG TGCCTGGCCT ATTTTATTAT    2100

ATTGTAATAT ATTTTATTAT ATTAGCCACC ATGCCTGTCC TATTTTCTTA TGTTTTAATA    2160

TATTTTAATA TATTACATGT GCAGTAATTA GATTATCATG GGTGAACTTT ATGAGTGAGT    2220

ATCTTGGTGA TGACTCCTCC TGACCAGCCC AGGACCAGCT TTCTTGTCAC CTTGAGGTCC    2280

CCTCGCCCCG TCACACCGTT ATCGATTACT CTGTGTCTAC TATTATGTGT GCATAATTTA    2340

TACCGTAAAT GTTTACTCTT TAAATAAAAA AAAAAAAAA                           2380
```

(2) INFORMATION FOR SEQ ID NO: 4:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 383 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS:
        (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

```
Met Gly Leu Gly Arg Val Leu Leu Phe Leu Ala Val Ala Phe Pro Phe
1               5                   10                  15

Ala Pro Pro Ala Ala Ala Ala Glu Pro His Ser Leu Arg Tyr Asn Leu
            20                  25                  30
```

Met Val Leu Ser Gln Asp Glu Ser Val Gln Ser Gly Phe Leu Ala Glu
        35   40   45

Gly His Leu Asp Gly Gln Pro Phe Leu Arg Tyr Asp Arg Gln Lys Arg
    50   55   60

Arg Ala Lys Pro Gln Gly Gln Trp Ala Glu Asp Val Leu Gly Ala Lys
65   70   75   80

Thr Trp Asp Thr Glu Thr Glu Asp Leu Thr Glu Asn Gly Gln Asp Leu
        85   90   95

Arg Arg Thr Leu Thr His Ile Lys Asp Gln Lys Gly Gly Leu His Ser
        100   105   110

Leu Gln Glu Ile Arg Val Cys Glu Ile His Glu Asp Ser Ser Thr Arg
        115   120   125

Gly Ser Arg His Phe Tyr Tyr Asp Gly Glu Leu Phe Leu Ser Gln Asn
        130   135   140

Leu Glu Thr Gln Glu Ser Thr Val Pro Gln Ser Ser Arg Ala Gln Thr
145   150   155   160

Leu Ala Met Asn Val Thr Asn Phe Trp Lys Glu Asp Ala Met Lys Thr
        165   170   175

Lys Thr His Tyr Arg Ala Met Gln Ala Asp Cys Leu Gln Lys Leu Gln
        180   185   190

Arg Tyr Leu Lys Ser Gly Val Ala Ile Arg Arg Thr Val Pro Pro Met
        195   200   205

Val Asn Val Thr Cys Ser Glu Val Ser Glu Gly Asn Ile Thr Val Thr
      210   215   220

Cys Arg Ala Ser Ser Phe Tyr Pro Arg Asn Ile Thr Leu Thr Trp Arg
225   230   235   240

Gln Asp Gly Val Ser Leu Ser His Asn Thr Gln Gln Trp Gly Asp Val
          245   250   255

Leu Pro Asp Gly Asn Gly Thr Tyr Gln Thr Trp Val Ala Thr Arg Ile
        260   265   270

Arg Gln Gly Glu Glu Gln Arg Phe Thr Cys Tyr Met Glu His Ser Gly
        275   280   285

Asn His Gly Thr His Pro Val Pro Ser Gly Lys Val Leu Val Leu Gln
        290   295   300

Ser Gln Arg Thr Asp Phe Pro Tyr Val Ser Ala Ala Met Pro Cys Phe
305   310   315   320

Val Ile Ile Ile Ile Leu Cys Val Pro Cys Cys Lys Lys Lys Thr Ser
        325   330   335

```
Ala Ala Glu Gly Pro Glu Leu Val Ser Leu Gln Val Leu Asp Gln His
            340                 345             350

Pro Val Gly Thr Gly Asp His Arg Asp Ala Ala Gln Leu Gly Phe Gln
            355                 360             365

Pro Leu Met Ser Ala Thr Gly Ser Thr Gly Ser Thr Glu Gly Ala
    370                 375             380
```

(2) INFORMATION FOR SEQ ID NO: 5:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 25 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

ACTGGGGAAC AAGGTTTATA TGAGA   25

(2) INFORMATION FOR SEQ ID NO: 6:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 24 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

TGTCACCCGT CTTCTACAGG ACCC   24

(2) INFORMATION FOR SEQ ID NO: 7:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

GGGGCCATGG GGCTGGG   17

(2) INFORMATION FOR SEQ ID NO: 8:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

ATCTGAGATG TCGGTCC   17

(2) INFORMATION FOR SEQ ID NO: 9:

        (i) SEQUENCE CHARACTERISTICS:
             (A) LENGTH: 25 base pairs
             (B) TYPE: nucleic acid
             (C) STRANDEDNESS: single
             (D) TOPOLOGY: linear

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

CGTTCTTGTC CCTTTGCCCG TGTGC   25

(2) INFORMATION FOR SEQ ID NO: 10:

        (i) SEQUENCE CHARACTERISTICS:
             (A) LENGTH: 25 base pairs
             (B) TYPE: nucleic acid
             (C) STRANDEDNESS: single
             (D) TOPOLOGY: linear

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

AACCCTTCCC TTACCCCCGT CGTAG   25

(2) INFORMATION FOR SEQ ID NO: 11:

        (i) SEQUENCE CHARACTERISTICS:
             (A) LENGTH: 45 base pairs
             (B) TYPE: nucleic acid
             (C) STRANDEDNESS: single -   -   -
             (D) TOPOLOGY: linear

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

TATGTAAAAC GACGGCCAGT TTCACCTGTG ATTTCCTCTT CCCCA   45

(2) INFORMATION FOR SEQ ID NO: 12:

        (i) SEQUENCE CHARACTERISTICS:
             (A) LENGTH: 45 base pairs
             (B) TYPE: nucleic acid
             (C) STRANDEDNESS: single
             (D) TOPOLOGY: linear

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

GGTCTTTTCA ATCCCCGTCT CTCGTCCAGT ATCGACAAAG GACAT   45

(2) INFORMATION FOR SEQ ID NO: 13:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 40 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

TATGTAAAAC GACGGCCAGT TTCGGGAATG GAGAAGTCAC   40

(2) INFORMATION FOR SEQ ID NO: 14:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 40 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

CGAGAGGAGA GGGAGGTTAA CCAGTATCGA CAAAGGACAT   40

(2) INFORMATION FOR SEQ ID NO: 15:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 40 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

TATGTAAAAC GACGGCCAGT GTTCCTCTCC CCTCCTTAGA   40

(2) INFORMATION FOR SEQ ID NO: 16:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 41 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

AAAAAGTCCC TTTCACGACC ACCAGTATCG ACAAAGGACA T   41